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FACSIMILE TRANSMISSION COVER SHEET

DATE: January 3, 2002

TO: Examiner J. Smetana
Group Art Unit 1746

RE: U.S. Patent Appln. S.N. 09/337,278
By: HIROOKA et al.
Filed: June 22, 1999
For: CLEANING AND HANDLING METHODS OF ELECTRONIC COMPONENT AND CLEANING APPARATUS THEREOF
Our Ref: P3271-4047-L990659

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NUMBER OF PAGES (INCLUDING THIS COVER SHEET): 3

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A summary of Issues to Discuss at Interview is attached. Please call after you have had an opportunity to review.

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ISSUES TO DISCUSS AT INTERVIEW

Claims 1 and 5 were rejected under 35 USC § 103(a) as being unpatentable over ***Miyashita et al.*** in view of ***Kanno***. This rejection is respectfully traversed.

In this rejection, the Examiner clarifies that he is relying upon ***Miyashita et al.***'s description of the prior art at column 1, lines 34-42 which brings a sponge member in contact with the object to be cleaned. ***Kanno*** is applied by the Examiner for its disclosure of using carbon dioxide gas to reduce resistivity of pure water.

In the last paragraph of page 2 of the Office Action, the Examiner characterizes ***Kanno*** as teaching damage of a wafer may be reduced by reducing the resistivity of pure water by mixing a carbon dioxide gas into the water. This description relates to damage as a result of colliding pure water against the surface of a wafer which generates a static charge.

As such, there would have been no motivation to have combined the references as asserted by the Examiner. In particular, there would have been no motivation for one of ordinary skill in the art to have modified the teachings of ***Miyashita et al.*** to employ carbon dioxide gas. As noted above, ***Kanno*** teaches that static charge is generated as a result of colliding a large amount of liquid against the surface of a wafer at high speed. Since ***Miyashita et al.*** does not collide water at a high speed against the surface, there is no concern of generating a static charge on the surface of the wafer. As such, there would have been no reason to reduce the resistivity of cleaning water. Still further, both of the cited references do not recognize or suggest that the resistivity of cleaning water should be below 5 MΩ.

Claims 1 and 5 were also rejected under 35 USC § 103(a) as being unpatentable over ***Miyashita et al.*** and ***Kanno*** in view of ***Takehiko et al.*** (JP 04-206724). ***Takehiko et al.*** is

applied by the Examiner for its disclosure of water having a resistivity value of 0.1 to 3.0.

Takehiko et al. appears to have a similar object with ***Kanno*** in reducing the damage caused by static charge. As such, there would not have been any motivation to combine the references for the same reasons as discussed above. That is, there would have been no motivation for one of ordinary skill in the art to combine the teachings of ***Kanno*** and ***Takehiko et al.*** with ***Miyashita et al.*** since ***Miyashita et al.*** does not suffer from problems associated with static charge.

Furthermore, the data provided in the present specification shows unexpected results associated with use of carbon dioxide gas and superpure water in accordance with the present invention as compared with superpure water by itself. Fig. 3, for example, illustrates this comparison. In particular, the particle elimination rate is increased in accordance with the present invention. In contrast thereto, there is no suggestion provided by the cited references that use of carbon dioxide gas would increase the particle elimination rate.

Items 4-7 of the Office Action set forth separate rejections of the dependent claims which rely upon the primary references discussed above. More specifically, claims 3, 7 and 8 were rejected under 35 USC § 103(a) as being unpatentable over ***Miyashita et al.*** and ***Kanno*** in view of ***Simmons et al.***; claims 3, 7 and 8 were rejected under 35 USC § 103(a) as being unpatentable over ***Miyashita et al.***, ***Kanno*** and ***Takehiko et al.*** in view of ***Simmons et al.***; claims 9 and 10 were rejected under 35 USC § 103(a) as being unpatentable over ***Miyashita et al.***, ***Kanno*** and ***Simmons et al.*** in view of ***Chung et al.***; and claims 9 and 10 were rejected under 35 USC § 103(a) as being unpatentable over ***Miyashita et al.***, ***Kanno, Simmons et al., Takehiko et al.*** in view of ***Chung et al.***